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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,030	03/17/2004	Patrick Benoit	08888.0530-01	3970

22852 7590 10/04/2007

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER	
GIBBS, TERRA C	

ART UNIT	PAPER NUMBER
1635	

MAIL DATE	DELIVERY MODE
10/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,030	BENOIT ET AL.	
	Examiner	Art Unit	
	Terra C. Gibbs	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *20 and 21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *See Continuation Sheet*.

Continuation of Attachment(s) 6). Other: Sequence search alignments #1, #2, and #3.

DETAILED ACTION

This Office Action is a response to Applicant's Amendment and Remarks and Applicant's Petition under 37 C.F.R. § 1.144 and 1.181. filed January 23, 2007.

Claims 1, 2, 10, 11, and 13 have been amended.

Claims 1-21 are pending in the instant application.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Petition Decision

In response to the Petition Decision mailed May 7, 2007, rejoinder of Groups I-X into one group is appropriate. The restriction requirement made between Groups I-X is withdrawn. Additionally, rejoinder of Groups XI-XV into one group is appropriate. The restriction requirement made between Groups XI-XV is withdrawn. The request to withdraw the restriction requirement between Groups (I-X) and Group XVI has been denied. The request to withdraw the restriction requirement between product Groups (I-X) and process of using the product, Groups (XI-XV) has also been denied.

Claims 1-19, directed to an isolated polynucleotide comprising SEQ ID NO:3 or a fragment of SEQ ID NO:3, wherein said fragment comprises SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or a sequence that hybridizes under high stringency conditions with any one of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, or SEQ ID NO:7, wherein said polynucleotide in the absence of inverted terminal repeat sequences from adeno-associated virus specifically induces expression in cardiac cells

in vivo of a gene which is operably linked to said polynucleotide, provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2, and expression cassettes comprising said polynucleotides have been examined on the merits.

Claims 20 and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on August 8, 2006.

Applicant is reminded that the Examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the

requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of In re Ochiai, In re Brouwer and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Claim Rejections - 35 USC § 101

In the previous Office Action mailed October 10, 2006, claims 1, 2, 7, 9-19 were rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. **This rejection is withdrawn** in view of Applicant's Amendment filed January 23, 2007. Specifically, the Examiner is withdrawing this rejection in view of Applicant's Amendment to the claims to recite, "an isolated polynucleotide".

Claim Rejections - 35 USC § 112

In the previous Office Action mailed October 10, 2006, claims 11 and 13 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. **This rejection is withdrawn** in view of Applicant's Amendment filed January 23, 2007. Specifically, the Examiner is withdrawing this rejection in view of Applicant's Amendment to the claims to correct for a lack in antecedent basis.

In the previous Office Action mailed October 10, 2006, claims 1, 2, 7, 9-19 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. **This rejection is withdrawn** in view of Applicant's Amendment filed January 23, 2007. Specifically, the Examiner is withdrawing this rejection in view of Applicant's Amendment to the claims to recite specific polynucleotide fragments of SEQ ID NO:3, namely SEQ ID NOs: 4 to 7, with the *proviso* that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2.

Claim Rejections - 35 USC § 102

In the previous Office Action mailed October 10, 2006, claims 1, 2, 7, and 9-19 were rejected under 35 U.S.C. 102(b) as being anticipated by Schwartz et al. WO0246220. **This rejection is withdrawn** in view of Applicant's Amendment filed January 23, 2007. Specifically, the Examiner is withdrawing this rejection in view of Applicant's Amendment to the claims to recite specific polynucleotide fragments of SEQ

ID NO:3, namely SEQ ID NOs: 4 to 7, with the *proviso* that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2. It is noted that Schwartz et al. do not teach or suggest the specific polynucleotide fragments of SEQ ID NO:3, namely SEQ ID NOs: 4 to 7, with the *proviso* that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2 as now claimed.

In the previous Office Action mailed October 10, 2006, claims 1, 2, 7, 15, 17, and 19 were rejected under 35 U.S.C. 102(b) as being anticipated by Kuo et al. (Development, 1999 Vol. 126:4223-4234, made of record on the information disclosure statement filed August 30, 2004). **This rejection is withdrawn** in view of Applicant's Amendment filed January 23, 2007. Specifically, the Examiner is withdrawing this rejection in view of Applicant's Amendment to the claims to recite specific polynucleotide fragments of SEQ ID NO:3, namely SEQ ID NOs: 4 to 7, with the *proviso* that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2. It is noted that Kuo et al. do not teach or suggest the specific polynucleotide fragments of SEQ ID NO:3, namely SEQ ID NOs: 4 to 7, with the *proviso* that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2 as now claimed.

In the previous Office Action mailed October 10, 2006, claims 1 and 2 were rejected under 35 U.S.C. 102(b) as being anticipated by Aihara et al. (GenBank Accession Number AF131884, made of record on the information disclosure statement filed August 30, 2004). **This rejection is withdrawn** in view of Applicant's Amendment

filed January 23, 2007. Specifically, the Examiner is withdrawing this rejection in view of Applicant's Amendment to the claims to recite specific polynucleotide fragments of SEQ ID NO:3, namely SEQ ID NOs: 4 to 7, with the *proviso* that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2. It is noted that Aihara et al. teach an isolated polynucleotide sequence that comprises nucleotides 2053 to 2074 of SEQ ID NO:2 and thus cannot anticipate the claimed invention.

Applicant's Amendment necessitated the new grounds of rejection(s) presented below:

Priority

Applicant's reference to priority in the first sentence of the specification is acknowledged. However, the instant invention has been afforded priority to March 17, 2004, which is the filing date of the instant application because support for claims drawn to an isolated polynucleotide comprising SEQ ID NO:3 or a fragment of SEQ ID NO:3, wherein said fragment comprises SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or a sequence that hybridizes under high stringency conditions with any one of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, or SEQ ID NO:7, wherein said polynucleotide in the absence of inverted terminal repeat sequences from adeno-associated virus specifically induces expression in cardiac cells *in-vivo* of a gene which is operably linked to said polynucleotide, provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2, and expression cassettes comprising said polynucleotides is not found in any application for which Applicants

claim priority to.

In summary, the claimed invention has been afforded priority to March 17, 2004, which is the filing date of the instant application because parent applications for which Applicants claim benefit to do not have support for an isolated polynucleotide comprising SEQ ID NO:3 or a fragment of SEQ ID NO:3, wherein said fragment comprises SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or a sequence that hybridizes under high stringency conditions with any one of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, or SEQ ID NO:7, wherein said polynucleotide in the absence of inverted terminal repeat sequences from adeno-associated virus specifically induces expression in cardiac cells *in vivo* of a gene which is operably linked to said polynucleotide, provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2, and expression cassettes comprising said polynucleotides. Specifically, the limitation, "provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2" is not found in any parent application(s). If Applicants believe that they are entitled to an earlier priority date, the Examiner urges Applicant to specifically point, with particularity, where support can be found for the instant invention in any prior applications Applicants claim priority to.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Claim 1 is drawn to an isolated polynucleotide comprising SEQ ID NO:3 or a fragment of SEQ ID NO:3, wherein said fragment comprises SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or a sequence that hybridizes under high stringency conditions with any one of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, or SEQ ID NO:7, wherein said polynucleotide in the absence of inverted terminal repeat sequences from adeno-associated virus specifically induces expression in cardiac cells *in vivo* of a gene which is operably linked to said polynucleotide, provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2. It is noted that claims 2-19 are included in this rejection because of their dependency therein. While the instant specification supports claims directed to SEQ ID NO:3 and specific fragments of SEQ ID NO:3, the instant specification does not appear to have support for the limitation, "provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2". Specifically, the Examiner cannot find support for "nucleotides 2053 of 2074 of SEQ ID NO:2." In this regard, the limitation, "provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2" is new matter.

Applicant should specifically point out the support for any amendments made to the disclosure. See MPEP § 2163.06 which states, when filing an amendment, an Applicant should show support in the original disclosure for new or amended claims (See MPEP § 714.02 and § 2163.06).

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 15, and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/65924 ('924).

Claim 1 is drawn to an isolated polynucleotide comprising SEQ ID NO:3 or a fragment of SEQ ID NO:3, wherein said fragment comprises SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or a sequence that hybridizes under high stringency conditions with any one of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, or SEQ ID NO:7, wherein said polynucleotide in the absence of inverted terminal repeat sequences from adeno-associated virus specifically induces expression in cardiac cells *in vivo* of a gene which is operably linked to said polynucleotide, provided that said polynucleotide does not comprise nucleotides 2053 to 2074 of SEQ ID NO:2. Claims 2-6, 15, and 17-19 are dependent on claim 1 and include all the limitations of claim 1 with

the further limitations, wherein the polynucleotide is a sequence that hybridizes under high stringency conditions with either of SEQ ID NOs: 3-7; a vector comprising the polynucleotide according to claim 1; a vector according to claim 1 which is a plasmid or cosmid; a vector according to claim 1 which is derived from an adenovirus; and a composition comprising a therapeutically effective amount of the vector comprising the polynucleotide according to claim 1 and a pharmaceutically acceptable carrier.

'924 disclose and claim an isolated population of polynucleotides comprising or corresponding to polynucleotides corresponding to at least one polynucleotide shown in Table 1 and their respective complements (see Table 1 of '924 and claim 1). It is noted that one of the polynucleotides of the '924 invention is fully complementary to nucleotides 752-761 of SEQ ID NO:7 of the instant invention and thus will hybridize with either of SEQ ID NOs: 3-7 of the instant invention (see sequence search alignment #3 and page 72 of the WO document). Further, one of the polynucleotides of the '924 WO document is fully complementary to nucleotides 294-303 of SEQ ID NO:7 of the instant invention and thus will hybridize with either of SEQ ID NOs: 3-7 of the instant invention (see sequence search alignment #2 and page 95 of the WO document). Further, one of the polynucleotides of the '924 WO document is fully complementary to nucleotides 734-743 of SEQ ID NO:7 of the instant invention and thus will hybridize with either of SEQ ID NOs: 3-7 of the instant invention (see sequence search alignment #1 and page 104 of the WO document). Since the polynucleotides shown in the sequence search alignments are fully complementary to SEQ ID NO:7 of the instant invention, given this high degree of similarity, the polynucleotides disclosed by the '924 WO Document meet

the structural limitations of the claimed invention and would be expected to "hybridize under high stringency conditions" to either of SEQ ID NOs: 3-7 since the instant specification at page 6, paragraph [007] teaches, "high stringency conditions" is used in the sense given by Maniatis et al. 1982 (Molecular Cloning, A Laboratory Manual, Cold Spring Harbor CSH, N.Y., USA). It is further noted that the polynucleotides of the '924 WO document comprise a gene delivery vehicle (see claim 9), wherein the gene delivery vehicle is a plasmid, cosmid, or adenovirus (see page 10). It is also noted that the polynucleotides of the '924 WO document comprise pharmaceutically acceptable carriers (see page 15).

Therefore, WO 99/65924 anticipates claims 1-6, 15, and 17-19.

Conclusion

No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terra C. Gibbs whose telephone number is 571-272-0758. The examiner can normally be reached on 9 am - 5 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

> Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

tcg
September 30, 2007

/Terra Cotta Gibbs/

Sequence Search alignment #1

```
RESULT 56
AAZ78960/c
ID   AAZ78960 standard; DNA; 10 BP.
XX
AC   AAZ78960;
XX
DT   10-APR-2000  (first entry)
XX
DE   Human dendritic cell SAGE tag, SEQ ID NO:1388.
XX
KW   SAGE tag; serial analysis of gene expression; antigen-presenting cell;
KW   APC; monocyte-derived dendritic cell; differential gene expression;
KW   immunostimulatory cofactor; costimulatory factor; CTL;
KW   cytotoxic T-lymphocyte; tumour antigen; immunotherapy; anticancer; ss.
XX
OS   Homo sapiens.
XX
PN   WO9965924-A2.
XX
PD   23-DEC-1999.
XX
PF   18-JUN-1999;   99WO-US013800.
XX
PR   19-JUN-1998;   98US-0089833P.
PR   19-JUN-1998;   98US-0089844P.
PR   19-JUN-1998;   98US-0089853P.
PR   19-JUN-1998;   98US-0089878P.
PR   19-JUN-1998;   98US-0089991P.
PR   19-JUN-1998;   98US-0089992P.
PR   19-JUN-1998;   98US-0089993P.
PR   19-JUN-1998;   98US-0089994P.
PR   19-JUN-1998;   98US-0089997P.
PR   19-JUN-1998;   98US-0089999P.
PR   19-JUN-1998;   98US-0090000P.
PR   19-JUN-1998;   98US-0090035P.
PR   19-JUN-1998;   98US-0090036P.
PR   19-JUN-1998;   98US-0090039P.
PR   19-JUN-1998;   98US-0090040P.
PR   19-JUN-1998;   98US-0090041P.
PR   19-JUN-1998;   98US-0090042P.
PR   19-JUN-1998;   98US-0090043P.
PR   19-JUN-1998;   98US-0090044P.
PR   19-JUN-1998;   98US-0090045P.
PR   19-JUN-1998;   98US-0090047P.
PR   19-JUN-1998;   98US-0090048P.
PR   19-JUN-1998;   98US-0090072P.
PR   19-JUN-1998;   98US-0090076P.
PR   19-JUN-1998;   98US-0090077P.
PR   19-JUN-1998;   98US-0090078P.
PR   19-JUN-1998;   98US-0090079P.
PR   19-JUN-1998;   98US-0090080P.
PR   08-DEC-1998;   98US-0111715P.
XX
PA   (GENZ ) GENZYME CORP.
PA   (ROBE/) ROBERTS B L.
PA   (SHAN/) SHANKARA S.
XX
```

PI Roberts BL, Shankara S;
XX
DR WPI; 2000-106077/09.
XX
PT Isolated polynucleotides differentially expressed in antigen-presenting
PT cells, useful in gene vaccines against cancer.
XX
PS Claim 1; Page 104; 130pp; English.
XX
CC Sequences AAZ77573-Z79709 represent SAGE (serial analysis of gene
CC expression) tags used to identify mRNA transcripts encoding
CC immunostimulatory cofactor proteins which are preferentially or
CC differentially expressed in monocyte-derived dendritic cells compared
CC with monocytes. Some of the transcripts correspond to known genes or ESTs
CC (expressed sequence tags) which were previously unknown to be
CC preferentially or differentially expressed in dendritic cells, while
CC other transcripts correspond to novel genes. Antigen-presenting cell
CC (APC)-associated costimulatory factors play an important role in the
CC activation of the cytotoxic immune response, particularly against tumour
CC cells. Tumour antigen presentation via the MHC (major histocompatibility
CC complex) and subsequent recognition by T-cell receptors is alone
CC insufficient to activate a robust cytotoxic immune response that can lyse
CC the tumour cells, immunostimulatory cofactors also being required for
CC efficient activation of cytotoxic T-lymphocytes (CTLs). Nucleic acid
CC sequences identified using the SAGE tags have several potential uses.
CC They may be used in vaccines to induce an immune response, particularly
CC against a tumour antigen; to modulate the genotype of an APC; to screen
CC for agents that modulate expression of differentially expressed genes in
CC an APC; and as hybridisation probes/amplification primers for the
CC diagnosis, prognosis and monitoring of diseases related to abnormal
CC expression of these genes. Detection of the dendritic cell differentially
CC expressed genes, or of their encoded proteins, can be used to identify
CC cells as belonging to the monocyte lineage. Cells containing these genes
CC can be used in active immunotherapy (or to stimulate production of a
CC population of antigen-specific effector cells) and vectors containing
CC them are used in gene therapy. Co-administration of tumour antigens and
CC APC-associated costimulatory factors ensures adequate antigen
CC presentation to endogenous APCs and upregulates the APCs for the
CC presentation of co-stimulatory signals, migration to T cell-rich sites,
CC secretion of T cell growth factors and secretion of chemokines for
CC recruitment of immune effector cells
XX
SQ Sequence 10 BP; 2 A; 1 C; 5 G; 2 T; 0 U; 0 Other;

Query Match 1.2%; Score 10; DB 3; Length 10;
Score over Length 100.0%;
Best Local Similarity 100.0%; Pred. No. 4.8e+07;
Matches 10; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 734 CCCCAGCTAT 743
||||||||||
Db 10 CCCCAGCTAT 1

Sequence Search alignment #2

```
RESULT 55
AAZ78636/c
ID   AAZ78636 standard; DNA; 10 BP.
XX
AC   AAZ78636;
XX
DT   10-APR-2000  (first entry)
XX
DE   Human dendritic cell SAGE tag, SEQ ID NO:1064.
XX
KW   SAGE tag; serial analysis of gene expression; antigen-presenting cell;
KW   APC; monocyte-derived dendritic cell; differential gene expression;
KW   immunostimulatory cofactor; costimulatory factor; CTL;
KW   cytotoxic T-lymphocyte; tumour antigen; immunotherapy; anticancer; ss.
XX
OS   Homo sapiens.
XX
PN   WO9965924-A2.
XX
PD   23-DEC-1999.
XX
PF   18-JUN-1999;   99WO-US013800.
XX
PR   19-JUN-1998;   98US-0089833P.
PR   19-JUN-1998;   98US-0089844P.
PR   19-JUN-1998;   98US-0089853P.
PR   19-JUN-1998;   98US-0089878P.
PR   19-JUN-1998;   98US-0089991P.
PR   19-JUN-1998;   98US-0089992P.
PR   19-JUN-1998;   98US-0089993P.
PR   19-JUN-1998;   98US-0089994P.
PR   19-JUN-1998;   98US-0089997P.
PR   19-JUN-1998;   98US-0089999P.
PR   19-JUN-1998;   98US-0090000P.
PR   19-JUN-1998;   98US-0090035P.
PR   19-JUN-1998;   98US-0090036P.
PR   19-JUN-1998;   98US-0090039P.
PR   19-JUN-1998;   98US-0090040P.
PR   19-JUN-1998;   98US-0090041P.
PR   19-JUN-1998;   98US-0090042P.
PR   19-JUN-1998;   98US-0090043P.
PR   19-JUN-1998;   98US-0090044P.
PR   19-JUN-1998;   98US-0090045P.
PR   19-JUN-1998;   98US-0090047P.
PR   19-JUN-1998;   98US-0090048P.
PR   19-JUN-1998;   98US-0090072P.
PR   19-JUN-1998;   98US-0090076P.
PR   19-JUN-1998;   98US-0090077P.
PR   19-JUN-1998;   98US-0090078P.
PR   19-JUN-1998;   98US-0090079P.
PR   19-JUN-1998;   98US-0090080P.
PR   08-DEC-1998;   98US-0111715P.
XX
PA   (GENZ ) GENZYME CORP.
PA   (ROBE/) ROBERTS B L.
PA   (SHAN/) SHANKARA S.
XX
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PI Roberts BL, Shankara S;
XX
DR WPI; 2000-106077/09.
XX
PT Isolated polynucleotides differentially expressed in antigen-presenting
PT cells, useful in gene vaccines against cancer.
XX
PS Claim 1; Page 95; 130pp; English.
XX
CC Sequences AAZ77573-Z79709 represent SAGE (serial analysis of gene
CC expression) tags used to identify mRNA transcripts encoding
CC immunostimulatory cofactor proteins which are preferentially or
CC differentially expressed in monocyte-derived dendritic cells compared
CC with monocytes. Some of the transcripts correspond to known genes or ESTs
CC (expressed sequence tags) which were previously unknown to be
CC preferentially or differentially expressed in dendritic cells, while
CC other transcripts correspond to novel genes. Antigen-presenting cell
CC (APC)-associated costimulatory factors play an important role in the
CC activation of the cytotoxic immune response, particularly against tumour
CC cells. Tumour antigen presentation via the MHC (major histocompatibility
CC complex) and subsequent recognition by T-cell receptors is alone
CC insufficient to activate a robust cytotoxic immune response that can lyse
CC the tumour cells, immunostimulatory cofactors also being required for
CC efficient activation of cytotoxic T-lymphocytes (CTLs). Nucleic acid
CC sequences identified using the SAGE tags have several potential uses.
CC They may be used in vaccines to induce an immune response, particularly
CC against a tumour antigen; to modulate the genotype of an APC; to screen
CC for agents that modulate expression of differentially expressed genes in
CC an APC; and as hybridisation probes/amplification primers for the
CC diagnosis, prognosis and monitoring of diseases related to abnormal
CC expression of these genes. Detection of the dendritic cell differentially
CC expressed genes, or of their encoded proteins, can be used to identify
CC cells as belonging to the monocyte lineage. Cells containing these genes
CC can be used in active immunotherapy (or to stimulate production of a
CC population of antigen-specific effector cells) and vectors containing
CC them are used in gene therapy. Co-administration of tumour antigens and
CC APC-associated costimulatory factors ensures adequate antigen
CC presentation to endogenous APCs and upregulates the APCs for the
CC presentation of co-stimulatory signals, migration to T cell-rich sites,
CC secretion of T cell growth factors and secretion of chemokines for
CC recruitment of immune effector cells
XX
SQ Sequence 10 BP; 1 A; 2 C; 6 G; 1 T; 0 U; 0 Other;

Query Match 1.2%; Score 10; DB 3; Length 10;
Score over Length 100.0%;
Best Local Similarity 100.0%; Pred. No. 4.8e+07;
Matches 10; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 294 CCCCTCAGGC 303
||||||||||
Db 10 CCCCTCAGGC 1

Sequence Search alignment #3

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RESULT 53
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ID   AAZ77854 standard; DNA; 10 BP.
XX
AC   AAZ77854;
XX
DT   10-APR-2000  (first entry)
XX
DE   Human dendritic cell SAGE tag, SEQ ID NO:282.
XX
KW   SAGE tag; serial analysis of gene expression; antigen-presenting cell;
KW   APC; monocyte-derived dendritic cell; differential gene expression;
KW   immunostimulatory cofactor; costimulatory factor; CTL;
KW   cytotoxic T-lymphocyte; tumour antigen; immunotherapy; anticancer; ss.
XX
OS   Homo sapiens.
XX
PN   WO9965924-A2.
XX
PD   23-DEC-1999.
XX
PF   18-JUN-1999;   99WO-US013800.
XX
PR   19-JUN-1998;   98US-0089833P.
PR   19-JUN-1998;   98US-0089844P.
PR   19-JUN-1998;   98US-0089853P.
PR   19-JUN-1998;   98US-0089878P.
PR   19-JUN-1998;   98US-0089991P.
PR   19-JUN-1998;   98US-0089992P.
PR   19-JUN-1998;   98US-0089993P.
PR   19-JUN-1998;   98US-0089994P.
PR   19-JUN-1998;   98US-0089997P.
PR   19-JUN-1998;   98US-0089999P.
PR   19-JUN-1998;   98US-0090000P.
PR   19-JUN-1998;   98US-0090035P.
PR   19-JUN-1998;   98US-0090036P.
PR   19-JUN-1998;   98US-0090039P.
PR   19-JUN-1998;   98US-0090040P.
PR   19-JUN-1998;   98US-0090041P.
PR   19-JUN-1998;   98US-0090042P.
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Best Local Similarity 100.0%; Pred. No. 4.8e+07;
Matches 10; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy        752 ACCGGTGTGG 761
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Db         10 ACCGGTGTGG 1
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